

The List and New Species of the Caddisflies from Hokkaido, Japan (Trichoptera, Insecta)

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北海道産毛翅目の新種

北海道に生そくする毛翅目の分類学的研究はいまだに不十分である。筆者は最近北海道で採集した毛翅目の標本を調べる機会を得ることができた。その結果、標本中に現在まで記載発表されていない未知の種があることが判明したので、国際動物命名規約にしたがって、これらの種を新種として記載し、ここに発表する。(小林峯生)

The present paper deals with two small collections of the Trichoptera taken in Northern Japan, Hokkido, an area where only very pool has hitherto been known. A small collection of the Trichoptera donated by Mr. Osamu YAMANOUCHI who collected during 1973-1975. Another collection made by Miss, Tomiko ITO in 1976. On the following pages is given in a list of species in these collections of including descriptions of five new species.

For the privileges of studying these collections I have to thank Mr. O. YAMANOUCHI, Higashi Taisetsu Museum of Natural History, and to Miss T. ITO, Hokkaido Salmon Hatchery.

1. Rhyacophilidae

1. *Rhyacophila* sp.

1♀ (M. 5116) in alcohol; Nukabira, Kamisiboro-machi, Hokkido; July 4, 1974; O. YAMANOUCHI leg.

2. *Rhyacophila* sp.

1♀ (M. 5115) in alcohol; Nukabira, Kamisiboro-machi, Hokkaido; July 4, 1974; O. YAMANOUCHI leg.

2. Glossosomatidae

3. *Glossosoma inops* (TSUDA) (Plate 1 : Fig. 1)

In 1940 this species was described as new species *Mystrophora inops* by M. TSUDA in conformity with the male genitalia. I give here a further description of the female genitalia from an example in alcohol.

Spurs 2, 4, 4. Intermediate tibia and tarsus considerably dilated, Antennae slen-

der, as long as the anterior wing. Basal joint stout, shorter than the head. Ocelli present. Maxillary palpi five-jointed; terminal joint not articulated. The first two joints very short, the following joints long, cylindrical. Wings elongate, clothed with brown hairs. Discoidal cell in both wings closed. Anterior wings with apical forks nos. 1, 2, 3, 4 and 5; R_1 forked at its apex. Thyridial and median cell present. An additional costal cross-vein absent. Posterior wing shorter and narrower, apical forks nos. 2, 3 and 5 present. Thyridial cell present.

Genitalia, ♀. -Abdomen produced and tapering a pair of two pointed filaments, as in usual. A small process to the sixth sternite, which is strongly chitinized.

Measurement: ♀, body 7.0mm., anterior wing 11.0mm., posterior wing 7.0mm.

3♂, 5♀ (M. 5123) in alcohol; Mt. Muine, Jyozan-kei, Sapporo, Hokkaido; August 27, 1976; T. ITO legs.

3. Lepidostomatidae

4. *Dinarthroides japonica* (TSUDA)

5♂ (M. 5100) in alcohol; Nukabira, Kamisiboro-machi, Hokkaido; August 3, 1974; O. YAMANOUCHI legs.

5. *Dinarthroides nukabiraensis* KOBAYASHI

5♂ (M. 5101) in alcohol; Nukabira, Kamisiboro-machi, Hokkaido; August 3, 1974; O. YAMANOUCHI legs.

6. *Dinarthroides bipertita* KOBAYASHI

1♂ (M. 5102) in alcohol; Nukabira, Kamisiboro-machi, Hokkaido; July 23, 1974; O. YAMANOUCHI leg.

4. Limnophilidae

7. *Neophylax ussuriensis* MARTYNOV

13♂ (M. 5096, M. 5097, M. 5098, M. 5099) in alcohol; Nukabira, Kamisiboro-machi, Hokkaido; August 1, 1973; 1♂ (M. 5110) in alcohol; Nukabira Kamisiboro-machi, Hokkaido; July 4, 1974; O. YAMANOUCHI legs. 1♂, 1♀ (M. 5125) in alcohol; Mt. Muine, Jyozan-kei, Sapporo, Hokkaido; September 3, 1976; T. ITO legs.

8. *Neophylax muinensis* sp. nov. (Plate 1: Figs. 2, 3, 4. Plate 2: Fig. 5)

Head and thorax pale ochreous. Antennae dark brown, as long as the wings, moderately stout, basal joint longer and stouter than remaining joints. Ocelli present. Maxillary palpi of male three-jointed, pale ochreous, clothed with dark brown hairs, each joint elongated. Labial palpi three-jointed, similar in form in both sexes, only slightly pubescent.

Legs pale ochreous; spurs 1, 3, 3; tibia and tarsus armed with black strongly

spines.

Anterior wings parchmen-like, with scanty pubescent; discoidal cell closed, long median cell absent; cella thyridii long and narrow; apical forks nos. 1, 2, 3 and 5 present. Posterior wings much broader than the anterior and less pubescent; apical forks nos. 1, 2, 3 and 5 present; discoidal cell closed, long; the neuration is similar in the both sexes.

Abdomen pale ochreous; ventral plate long spine, like process.

Genitalia, ♂.-Distal margin of the ninth segment produced at its center in a bifurcate dorsal plate, broadened at its base; each fork long and broad, with round distal margin. Superior appendage appearing to arise from the margin of the ninth sternite, claw-shaped. Inferior appendage strongly chitinized, large, claw-like process. Ventral margin of the ninth segment strongly produced with a truncate apical margin.

Genitalia, ♀.-From above, segment terminate in a blunt triangle, distal margin excised and lobe arising on the lateral margin; from the side, the distal margin of the segment strongly produced with lobe apical margin; from beneath, there is an arched lobe.

Measurement: Holotype, body 8.0 mm., anterior wing 11.0 mm., posterior wing 9.0 mm. Allotype, ♀, body 8.0 mm., anterior wing 11.3 mm., posterior wing 9.0 mm.

Holotype; ♂ (M. 5103) in alcohol; Nukabira, Kamisiboro-machi Hokkaido; August 5, 1975; O. YAMANOUCHI leg. Allotype; ♀ (M. 5124) in alcohol; Mt. Muine, Jyozankei, Sapporo, Hokkaido; September 3, 1976; T. ITO leg. Paratype; 6♂ (M. 5105) in alcohol; Nukabira, Kamisiboro-machi, Hokkaido; August 3, 1976; O. YAMANOUCHI legs.

This species closely resembles *N. japonicus* in shape of the both wing, but is distinguished from the latter by size, colour, and especially by the structure of genitalia in male.

The specific name *muinensis* can from the collected site.

9. *Discosmoecus jyozeanekanus* (MATSUMURA)

7♂ (M. 5107, M. 5108, M. 5109) in alcohol; Nukabira, Kamisiboro-machi Hokkaido; July 22, 1974; O. YAMANOUCHI legs.

10. *Limnophilus fuscovittatus* MATSUMURA. (Plate 2: Fig. 5)

In 1903 this species was described as new species *L. fuscovittatus* by S. MATSUMURA in conformity with the male genitalia. I give here a further description of the female genitalia from an example in alcohol.

The external appearance of female closely resembles in male.

Genitalia, ♀.-Dorsal margin of the ninth tergite produced at its center with two short, triangular processes; apical processes divided into two lobes; each lobe finger-shaped. Ventral margin of the eighth sternite strongly excised at its

center with three processes; central process lobe-shaped; side processes broad, plate-shaped.

1♀ (M. 5112) in alcohol; Akan Lake, Hokkaido; June 8, 1976; T. ITO leg.

11. *Hydatophilax grammicus* (McLACHLAN)

1♂ (M. 5111) in alcohol; Nukabira, Kamisiboro-machi, Hokkaido; July 1, 1974; O. YAMANOUCHI leg.

5. Leptoceridae

12. *Leptocerus utonaiensis* sp. nov. (Plate 2: Figs. 7, 8.)

Head dark brown, clothed with brown hairs. Ocelli absent. Antennae pale brown, extremely slender, much longer than the wings; apical portion of each joints blackish brown, clothed black pubescent. Basal joint stout, longer than the head. Maxillary palpi five-jointed, long and hairy; all joints comparatively long, the fourth and fifth thinner than the others; the fifth flexible. Labial palpi three-jointed, short and hairy.

Legs pale brown, clothed with brown hairs; spurs 0, 2, 2.

Anterior wing long and narrow, lanceolate, not dilated, hairy, covered with brown pubescent, with a white spot at forntal margin; discoidal cell closed, comparatively short, median forked at anastomosis; thyridial cell extermely long and narrow. Apical forks nos. 1 and 5 present, no. 1 with footstalk, Fringes compalatively long. Posterior wing covered with brown pubescent, even narrower than anterior, acute. Apical forks nos. 1 and 5 present. Stem of Rs complese basally. Fringes comparatively long. Neuration as fig.

Mesonotum and metanotum dark brown, clothed with dark brown bristles; meso-scutum with small numerous warts. Tergites and sternites pale brown; pleurites milk-white.

Genitalia, ♂.-From above, there is a large bifurcate plate, each fork acute at the apex and bearing long hairs, a wide excession between them. From the under side of each forks arises a long, distally directed process, tapering to an acute apex divided to two lobes. Penis strongly chitinized spine. Inferior appendage very large, bifuracte; upper branch with a huge, clavate apex and rather longer than the lower.

Genitalia, ♀.-Dorsal margin of the ninth tergite produced at its center with long process; beneath membranous; from side, sternite long lobe-like process, rounded at its apex, with long bristles.

Masurement: Holotype, body 5,5 mm., anterior wing 7,0 mm., posterior wing 6,3 mm. Allotype, body 5,5 mm., anterior wing 6,0 mm., posterior wing 5,5 mm.

Holotype; ♂ (M. 5117) in alcohol; Utonai Pond, Utoani, Tomakomai-shi, Hokkaido; August 28, 1976; Paratype; 1♂ (M. 5117a) in alcohol; Utonai Pond, Utonai, Tomakomai-shi, Hokkaido; August 28, 1976; Allotype; 1♀ (M. 5117b) in alcohol; Utonai Pond, Utonai, Tomakomai-shi, Hokkaido; August 28, 1976; T.

Ito legs.

This species is distinguished by form the structure of male genitalia from the Japanese species belonging to this genus.

The specific name *utoaiensis* cam from the collected site.

6. Hydroptilidae

13. *Hydropbila iioi* sp. nov. (Plate 3 : Figs. 10, 11. Plate 4)

Head yellowish brown, bearing two wide and rather shallow scent-organ caps at the back. Ocelli absent. Antennae 32-jointed in the male, very stout, much shorter than anterior wing, yellowish brown; joints nos. 16-19 and 24-27 clothed with fuscous hairs. Maxillary palpi yellowish brown five-jointed, covered with fuscous hairs. Labial palpi brown, three-jointed.

Anterior wings long and very acuminate at the apex, light gray with fuscous long fringes along frontal and posterior margin. Posterior wing gray, very acuminate at the apex, with long fringes along frontal and posterior margin. Neuration as fig.

Thorax pale yellowish brown, pronotum with a pair of small warts.

Legs yellowish brown, clothed with brown pubescent; spurs 0, 2, 4; each spurs stout, hairy.

Abdomen pale brown, each tergite with a pair of chitinized brown spots.

Genitalia, ♂.-From above, the distal margin of the ninth segment with a short broad process. Inferior appendage broadened at the base, horn-shaped; its apex courved outwardly. Superior appendage narrow, longer than the inferior appendage, curved outwardly, acute at its apex. From side, inferior appendage and supperior appendage narrow, strongly curved upwardly. The ninth segment hairy, clothed with long pubescent. Ventral plate of the eight short, boraded at base.

Genitalia, ♀.-Dorsal margin of ninth tergite produce at its center two short, lobes processes; ventral margin of the ninth sternite with clowe-like processes. Dorsal surface of the eight sternite with brown bristles.

Measurement: Holotype, body 2,0 mm., anterior wing 3,0 mm., posterior wing 2,0 mm., Allotype, body 2,3 mm., anterior wing 3,0 mm., posterior wing 2,0 mm.

Holotype; ♂ (M. 5119) in alcohol; Utonai Pond, Utonai, Tomakomai-shi, Hokkaido; August 23, 1976; Allotype; ♀ (M. 5119a) in alcohol; Utonai Pond, Utonai Tomakomai-shi, Hokkaido; August 23, 1976; Paratype; 5♂ (M. 5119b) in alcohol; Utonai Pond, Utonai, Tomakomai-shi, Hokkaido; August 23, 1976; T. Ito legs.

This species is distingushed by the dtructure of male genitalia from the other Japanese species belonging to this genus.

The specific name *itoi* cam from the collector name.

14. *Oxyethira ezoensis* sp. nov. (Plate 5 : Figs. 15, 16, 17)

Head yellowish brown, clothed with yellowish brown hairs. Ocelli present. Antennae 29-jointed, stout, shorter than the anterior wing. Basal joint not so as the head. Maxillary palpi five-jointed, the first and second joints very short. Labial palpi three-jointed.

Anterior wing long and extremely slender, densely pubescent, furnished with numerous semi-erect hairs, apex narrowly produced and acute. Neuration rather reduced by compression. Posterior wing hairless, slender; Rs runs unforked to the wing margin. Neuration as fig. Fringes in both wings very long, particularly so in the posterior, where they are much longer than the greatest width of wing.

Leg yellowish brown, with numerous long hairs. Spurs 0, 2, 4; each spurs clothed with pale brown pubescent.

Genitalia, ♂.—The dorsal margin of the ninth sternite produced in triangle; beneath it is a lightly chitinized plate, the apex of which is cut out in u-shaped excision in the center of which may be seen a membranous plate, probably an upper penis-cover, with excised apical margin. Inferior appendage long, stout, dilated at the middle portion. Penis stout, apical margin with spin-like processes.

Genitalia, ♀.—The dorsal margin of the ninth tergite produced at its center with broad margin. The surface of the ninth pleurite membranous, with chitinized plate; apical margin with slender lobe.

Measurement: Holotype, body 3.0 mm., anterior wing 3.0 mm., posterior wing 2.2 mm. Allotype, body 3.0 mm., anterior wing 5.0 mm., posterior wing 2.0 mm.

Holotype; ♂ (M. 5113) in alcohol; Utonai Pond, Utonai, Tomakomai-shi, Hokkaido; June 18, 1976; Paratype; ♂ (M. 5113a) in alcohol; Utonai Pond, Utonai, Tomakomai-shi, Hokkaido; June 18, 1976; Allotype; ♀ (M. 5113b) in alcohol; Utonai Pond, Utonai, Tomakomai-shi, Hokkaido; June 18, 1976; T. ITO legs.

This species closely resembles *O. angustella* in venation, size and shape of both wing, but is distinguished from the latter by the number of the joint of antennae, and especially by the structure of genitalia in male.

The specific name *ezoensis* is from the collected site.

15. *Oxytheria acuta* sp. nov. (Plate 5. Figs. 18. Plate. 6)

Head pale brown, clothed with pale brown hairs. Ocelli present. Antennae 39-jointed, pale brown clothed with pale hairs; joints nos. 29, 30, 32, 33 and 34 clothed brown hairs, Basal joint shorter and longer than the remaining joints. Maxillary palpi five-jointed; basal joint much short, last joint simple. Labial palpi three-jointed, pale brown clothed with brown hairs.

Thorax pale brown, metanotum with chitinized pale of Y-shaped.

Legs pale brown, clothed with long hairs; the frontal surface of fore and middle legs clothed with brown hairs; spurs 0, 3, 4.

Anterior wing long and extremely slender, produced and acuted at apex; cent-

ral posterior and apical margin with black spots. Neuration obscure. Posterior wing narrower than anterior wing, acuted at apex, lanceolate. The whole surface clothed with long silver pubescent. Fringes silver, more longer than the width of that wing. Nuration obscure; Rs run unforked to the wing margin.

Genitalia, ♂.—Margin of ninth dorsal segment broadened; superior appendage stout; inner margin produced at middle portion. Inferior appendage two jointed; basal joint long, clothed with long pubescent, rounded at apex; terminal joint very short, claw-shaped.

Genitalia, ♀.—The dorsal margin of the ninth tergite produced at its center with two small lobes; sternite of the ninth segment with a pair of chitinized plate.

Measurement: Holotype, body 3.3 mm., anterior wing 3.3 mm., posterior wing 2.0 mm. Allotype, body 3.3 mm., anterior wing 3.3 mm., posterior wing 2.0 mm.

Holotype; ♂ (M. 5120) in alcohol Utonai Pond, Tomakomai-shi, Hokkaido; July 17, 1976: Allotype 1♀ (M. 5120a) in alcohol; Utonai Pond, Utonai, Tomakomai-shi, Hokkaido; July 17, 1976; T. Ito legs.

This species is distinguished by the structure of the male genitalia from the other Japanese species belonging to this genus.

The specific name *acuta* came from shape of wings.

All specimen is deposited in the Kanagawa Prefectural Museum, in Yokohama, Japan.

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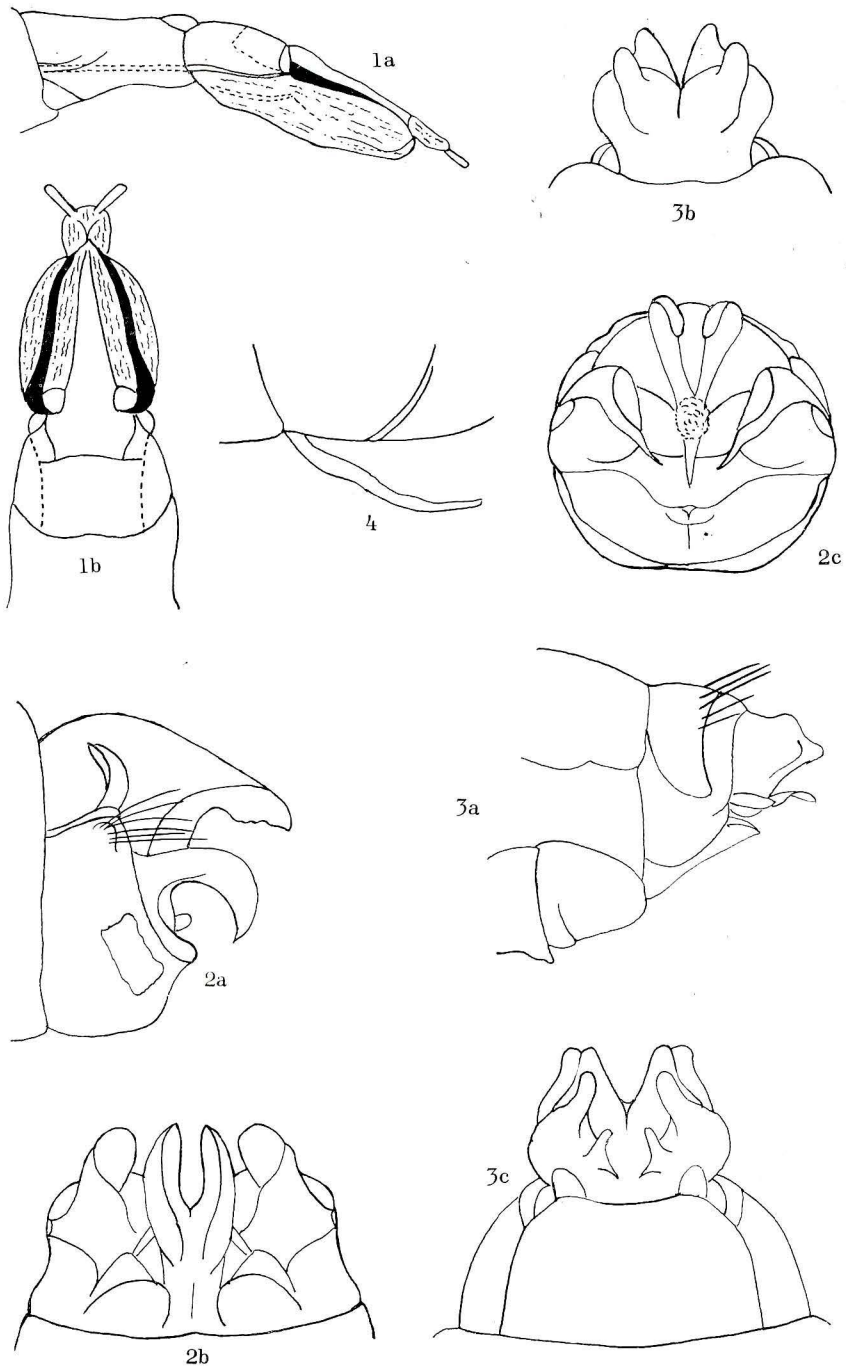


Plate. 1: Fig. 1. Female genitalia of *Glossosma inops*, 1a lateral, 1b dorsal; Fig. 2. Male genitalia of *Neophylax muinensis* sp. nov., 2a lateral, 2b dorsal, 2c posterior; Fig. 3. Female genitalia of *Neophylax muinensis* sp. nov., 3a lateral, 3b dorsal, 3c ventral; Fig. 4. Ventral plate of *Neophylax muinensis*.

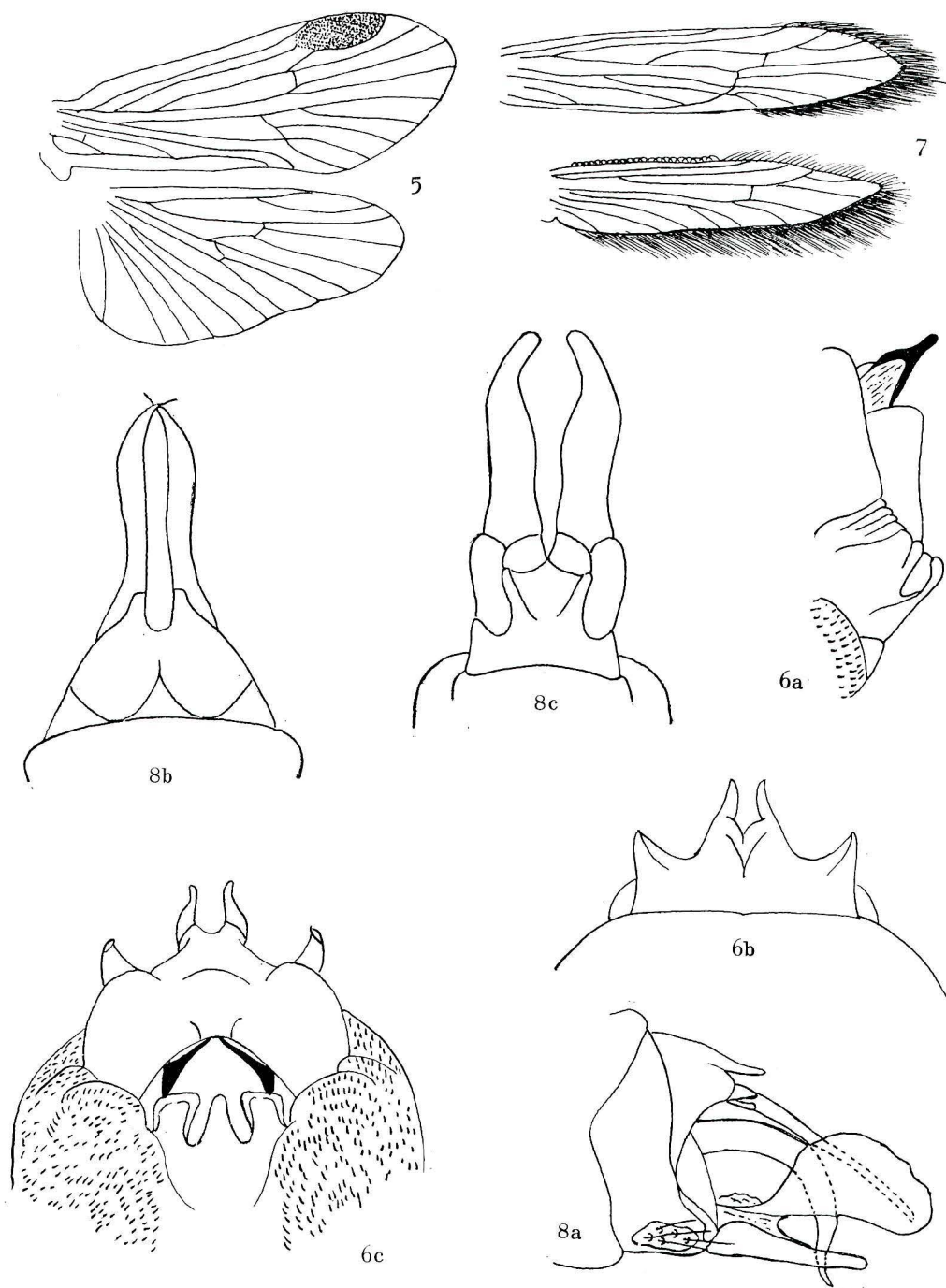


Plate. 2: Fig. 5. Neuration of *Neophylax muinensis* sp. nov.; Fig. 6. Female genitalia of *Limnophils fuscovittatus*, 6a lateral, 6b dorsal, 6c ventral; Fig. 7. Neuration of *Liptocerus utonaiensis* sp. nov.; Fig. 8. Male genitalia of *Leptocerus utonaiensis* sp. nov., 8a lateral, 8b dorsal, 8c ventral.

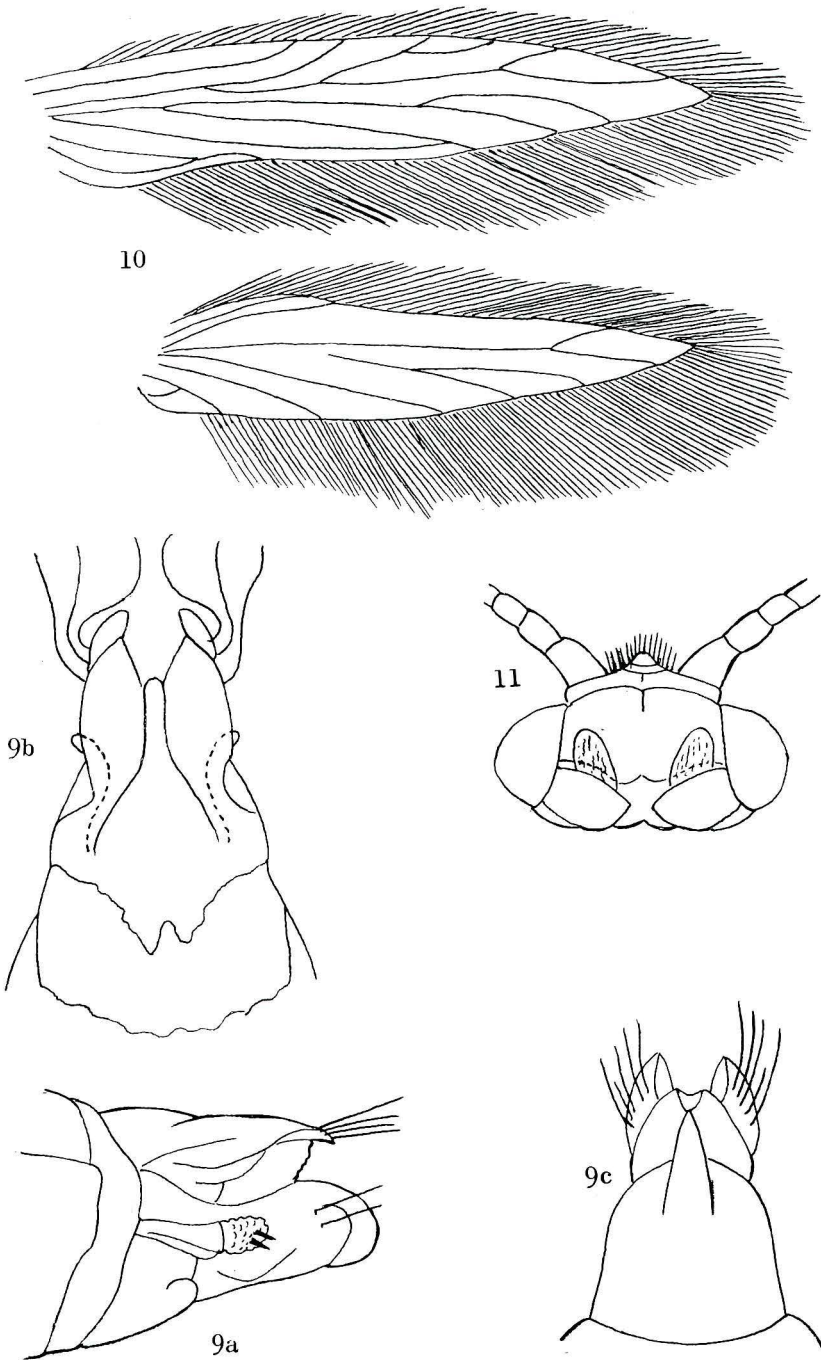


Plate. 3: Fig. 9. Female genitalia of *Leptocerus utonaiensis* sp. nov., 9a lateral, 9b dorsai, 9c ventral; Fig. 10. Neurulation of *Hydroptila itoi* sp. nov.; Fig. 11. Head of male of *Hydroptila itoi* sp. nov.

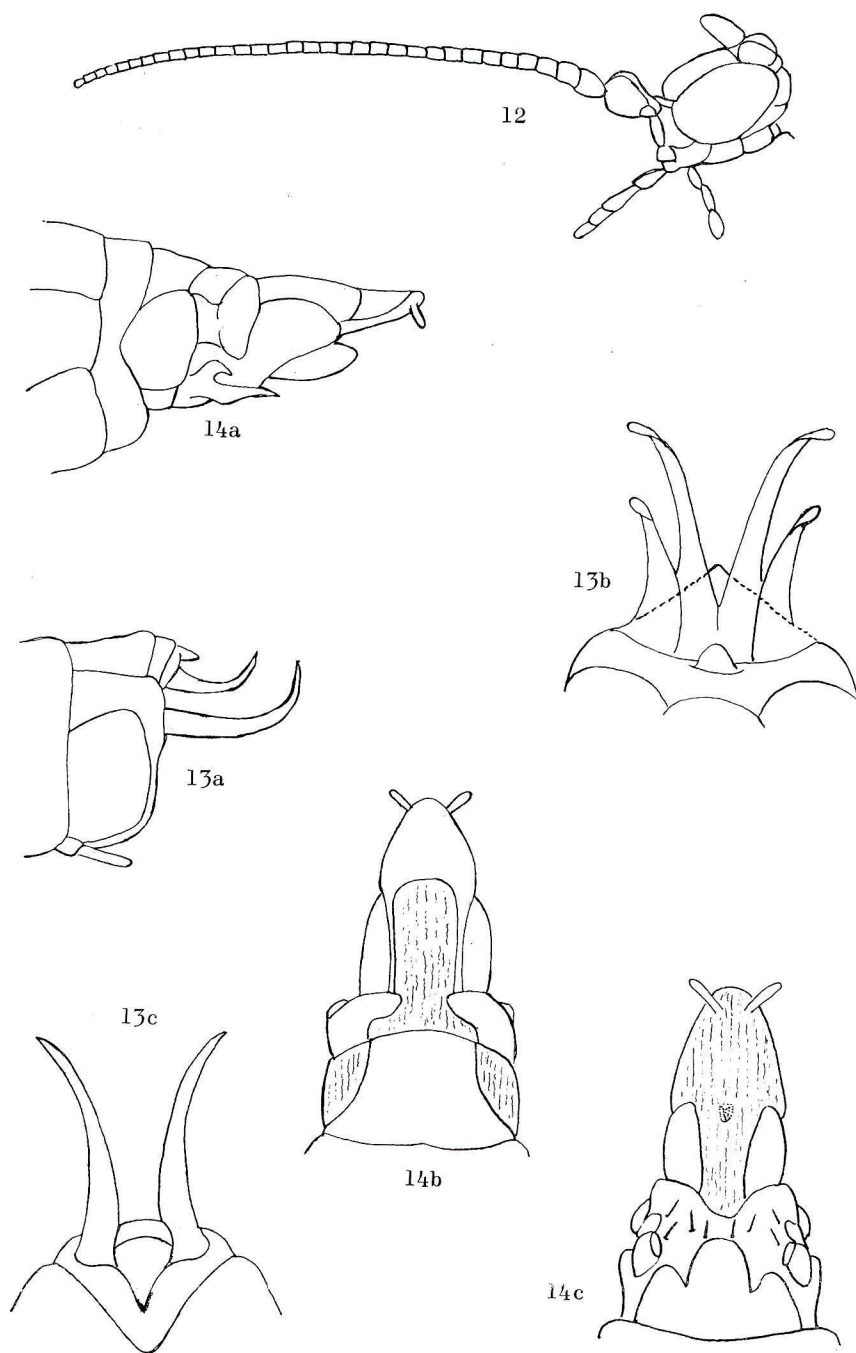


Plate. 4: Fig. 12. Antennae of Male of *Hydroptila itoi* sp. nov.; Fig. 13. Male genitalia of *Hydroptila itoi* sp. nov., 13a lateral, 13b dorsal, 13c ventral; Fig. 14. Female genitalia of *Hydroptila itoi* sp. nov., 14a lateral, 14b dorsal, 14c ventral.

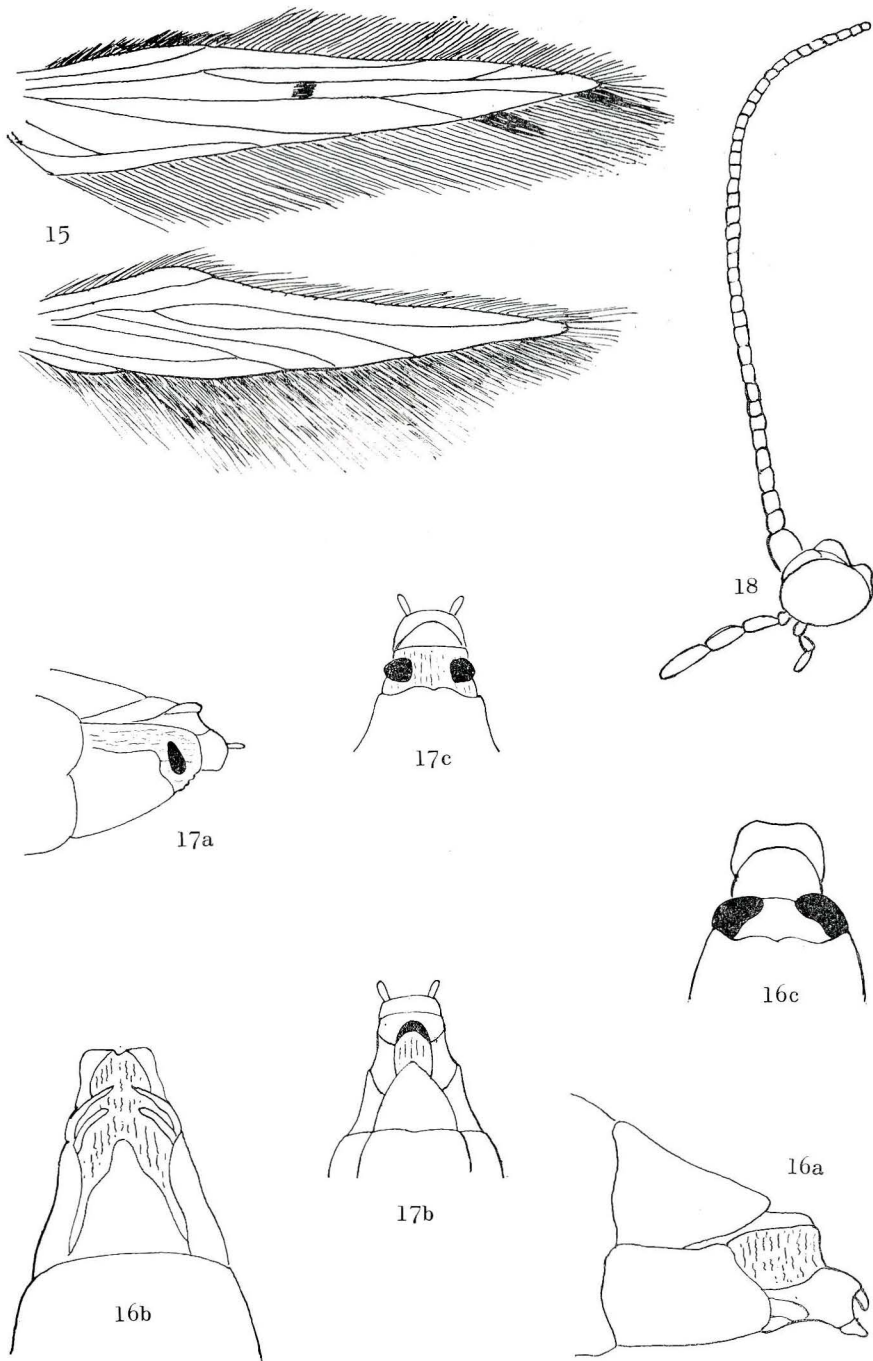
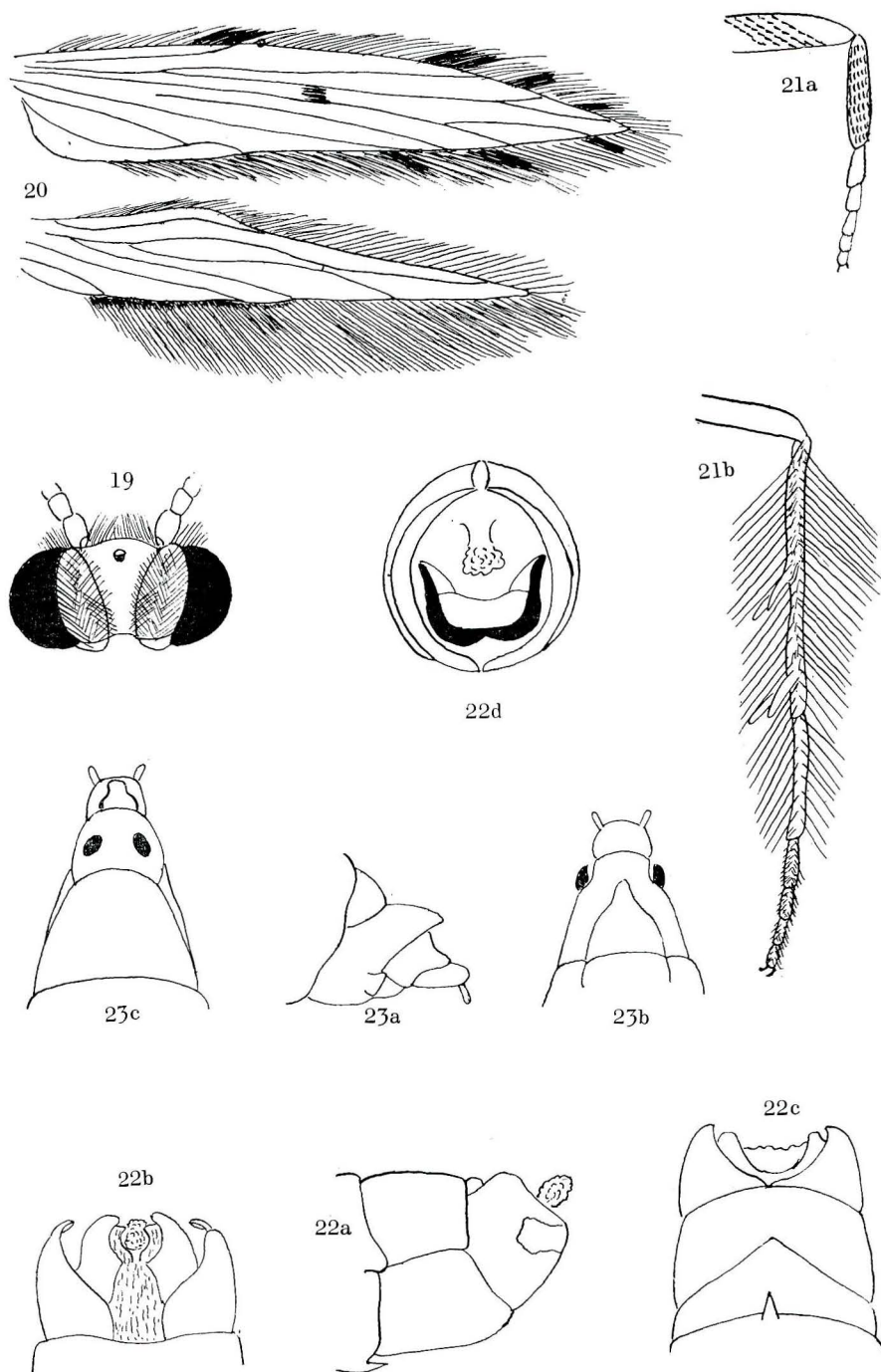


Plate. 5: Fig. 15. Neuration of *Oxyethira ezoensis* sp. nov.; Fig. 16. Male genitalia of *Oxyethira ezoensis* sp. nov., 16a lateral, 16b dorsal, 16c ventral; Female genitalia of *Oxyethira ezoensis* sp. nov., 17a lateral, 17b dorsal, 17c ventral; Fig. 18. Head and antennae of male of *Oxyethira acuta* sp. nov.



Palte. 6: Fig. 19. Head of *Oxyethira acuta* sp. nov.; Fig. 20. Neuration of *Oxyethira acuta* sp. nov.; Fig. 21. Legs of *Oxyethira acuta* sp. nov., 21a anterior, 21b middle; Fig. 22. Male genitalia of *Oxyethira acuta* sp. nov., 22a lateral, 22b dorsal; 22c ventral, 22d posterior; Fig. 23. Female genitalia of *Oxyethira acuta* sp. nov., 23a lateral, 23b dorsal, 23c ventral.